# POWERCRAT CABLE PULLER
## ELECTRIC WINCH

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## 1. GENERAL

1.01 This section describes the Powercrat Cable Puller, designated by the manufacturer as "Standard T Powercrat" on the nameplate of the apparatus, and outlines precautions essential to safe operation and maintenance procedure.

1.02 This electric winch is primarily intended for use in pulling house cable, particularly riser cables, as described in the Block and House Cable Practices.

1.03 Permission to use customer's power should be obtained in advance of the job. If customer power is not available or permission cannot be obtained, other methods of pulling cable outlined in the Block and House Cable Practices should be followed.

## 2. PRECAUTIONS

2.01 In setting up the boom, special care should be exercised to prevent contact with electrical circuits.

2.02 Handling of the winch rope and its care and inspection should follow the general instructions outlined in the Practices covering Winches and Power Take-Offs and Wire Rope.

2.03 Before starting to pull cable, check the boom bracing to ensure that it is adequately supported to hold the load.

2.04 Where cable is being pulled from lower floors up into buildings and the weight of the cable is being lifted, **never shift gears while under load.**

2.05 Where jobs involve removing riser cable from shafts or conduit and it is decided to lower them with the winch, keep the power unit in low gear and disconnect the motor electrically by placing the reversing switch in the "off" position. Failure to do this may cause the motor starting capacitor to burn out if the rate of descent is greater than 4 ft. per min. Use the brake to check the rate of descent and make sure this speed is not exceeded.

2.06 Do not connect the winch unit to electrical receptacles until it is definitely known that they supply 110-120-volt, 60-cycle **alternating current** and that the circuit is adequately fused to operate the unit. At full load the motor draws approximately 7 amperes at 110 volts. If for any reason a power failure should occur while the winch is being operated, release the starting lever. The holding brake is thus automatically engaged.

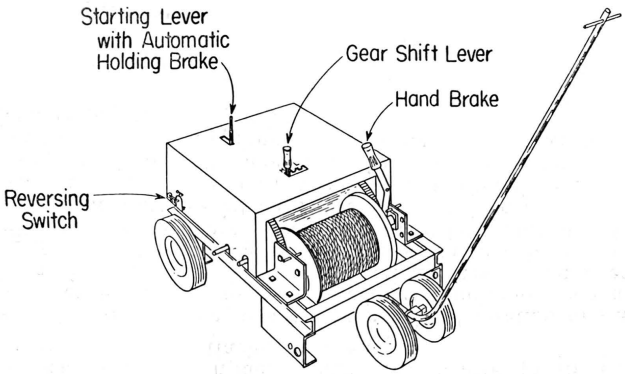
2.07 The frame of the Powercrat Cable Puller must be grounded during operation. A 50-ft. length of 12-gauge, three-conductor cord, supplied with the unit, provides a means for grounding to commercial power outlet receptacles. One end of the cord terminates in a three prong, twistlock, plug cap and the other end in a two prong plug cap and a spade tip grounding wire. The spade tip is fastened under one of the face screws of the receptacle.

2.08 Before operating the Powercrat, make certain that the starting lever does not rest against the housing or any other part which would restrict full engagement of the holding brake.

## 3. DESCRIPTION

3.01 The Powercrat Cable Puller, illustrated in the following sketch, consists principally of three major units, namely:

(a) Electric Winch
(b) Boom Equipment
(c) Sheave and Axle




POWERCRAT CABLE PULLER–WINCH UNIT

3.02 The electric winch unit consists of a 2-1/16-inch diameter winch drum driven by a 1/2-HP, 110-120-volt, 60-cycle AC, 1750 r.p.m. capacitor starting motor through a set of reduction gears which permit a selection of two winch speeds, 3-1/2 r.p.m. and 8 r.p.m. The motor and gear train are enclosed in a metal housing and the unit is mounted on four steel channel legs which rest on the floor during the pulling operation. Mobility is provided by two removable rubber tired rear wheels and a detachable two wheel, similarly tired, dolly at the front end.

Maximum safe pulling load of the winch in low gear is 5000 pounds with an average rope speed of 4 ft. per minute. Maximum safe pulling load of the winch in high gear is 2000 pounds with an average rope speed of 8-1/2 ft. per min.

3.03 The boom equipment consists of two 7-ft. sections and one 3-ft. section of double channel steel frames, 28 inches wide, which can be used in various combinations to serve as a pulling-in frame and a sheave support. Where additional height is required or greater strength is necessary for hard pulls, two sections can be clamped together with four "U" bolts supplied with the equipment. In some set-ups the short boom may be used to brace the longer boom sections.

3.04 The sheave and axle are fastened to the side rails of the pulling-in frame by means of two steel angle brackets. Both short and long bolts are supplied for securing the brackets to either a single or double boom.

3.05 The weight of the complete cable pulling unit, is approximately 425 pounds.

## 4. WINCH ROPE FOR POWERCRAT

4.01 As the Powercrat winch drum diameter is much smaller than the drum diameters of truck winches, a 6 x 37 flexible type wire rope is required and ropes larger than 3/8-inch diameter should not be used. The footage of wire rope that can be wound on the drum and their respective breaking strengths are shown below:

| Dia. of Rope | Drum Capacity | Breaking Strength |
|---|---|---|
| 3/8″ | 350 ft. | 11,500 lbs. |
| 5/16″ | 400 ft. | 8,000 lbs. |
| 1/4″ | 700 ft. | 5,100 lbs. |

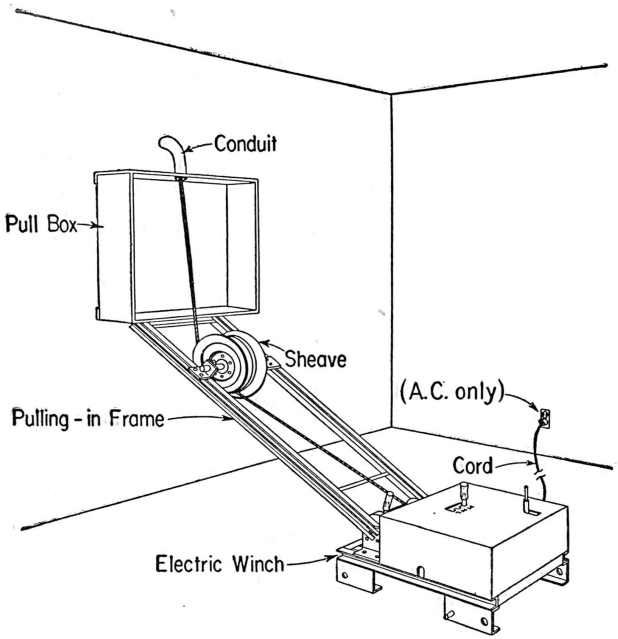
## 5. SETTING UP CABLE PULLER

5.01 Make certain that 110-120-volt, 60-cycle AC power is available.

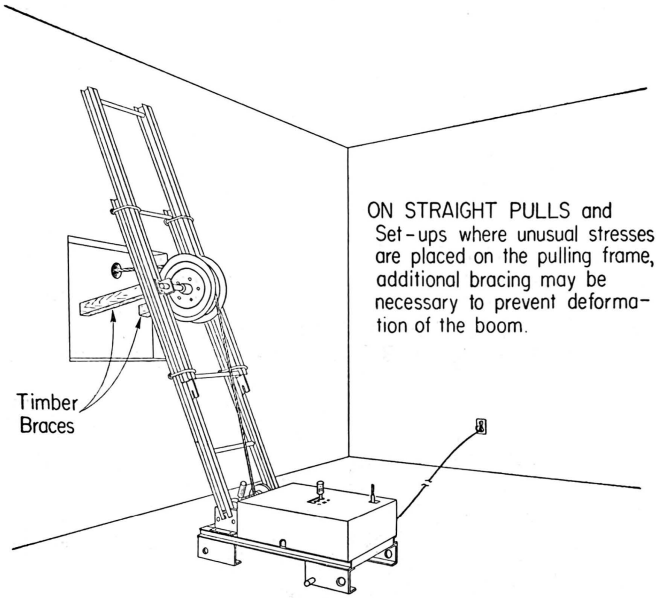
5.02 Locate the winch unit as outlined in the Block and House Cable Practices.

5.03 Remove wheels and dolly, and if conditions are such that the winch unit might shift position while under load, block or anchor it accordingly. Never attempt to pull cable with the wheels attached to the unit.

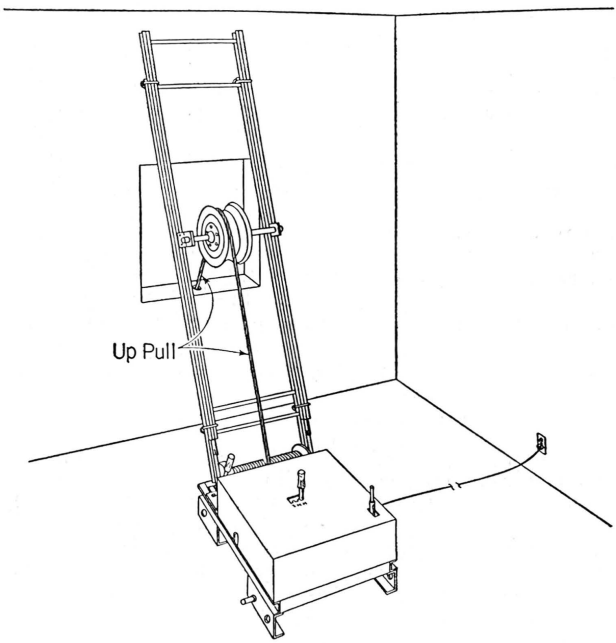
5.04 The combination of boom sections and location of the sheave depends upon the building conditions encountered on the job. Two 7-ft. boom sections may be adjusted to a height of 13 feet. This adjustment is obtained by sliding the boom sections to the required height and fastening them in place with the four special hard steel U-bolts. The booms are constructed of mild steel and the hard U-bolts should be drawn up tightly until the rails show a slight indentation. This will prevent the booms from slipping. The following sketches show typical set-ups for pulling cable.




PULLING CABLE FROM PULL BOX TO PULL BOX
OR FROM MANHOLE TO PULL BOX




SET-UP FOR STRAIGHT PULL IN PULL BOX




SET-UP FOR PULLING UP FROM PULL BOX

## 6. OPERATION

6.01 The electric winch unit is equipped with the four following controls for operation:

(1) Reversing Switch
(2) Starting Lever
(3) Gear Shift Lever
(4) Hand Brake Lever

6.02 The reversing switch, located on the right rear side, controls the direction of the winch drum, "forward" and "reverse," and in addition shuts off the power when in the "off" position. Rotation of the drum should stop before the switch is thrown to a new position.

6.03 The starting lever is located on top near the rear and it is used to start and stop the electric motor. To start the motor the lever is pushed rapidly toward the rear of the unit and, due to spring tension, it must be held in this position to operate the winch in the direction determined by the reversing switch. When the lever is released, the motor stops and the holding brake is automatically applied to hold any load that the winch will lift.

6.04 The gear shift lever, located on top near the center, permits a choice of two winch drum speeds "low" and "high," and a "neutral" position. When in "neutral" the winch drum is free running and this permits winch rope to be pulled from the drum with comparative ease. See Paragraph 2.04.

6.05 The hand brake lever is located on the left-hand side of the winch drum and furnishes an auxiliary or emergency brake. It is also useful in preventing overrunning of the winch drum when in the neutral gear position.

6.06 Make the necessary power connections and check the following before operating the cable puller:

(1) Make certain the electric winch unit and boom are securely anchored so that they will not move or break loose after starting to pull cable.

(2) Place the reversing switch in the "reverse" position and the gear shift lever in "low" speed and push back out the starting lever momentarily into its "on" position to see if the winch operates satisfactorily. Before doing this, however, be sure that the winch drum can rotate without fouling the rope.

(3) Place the gear shift lever in the "high" speed position and repeat the above test.

(4) Repeat (2) and (3) with the reversing switch in the "forward" position.

(5) If the unit performs properly, place the control levers in the desired positions and pull cable as outlined in the Block and House Cable Practices. If it is anticipated that the pull will be hard, place the unit in "low" speed drive and keep it there. **Never shift gears while under load.** Always release the tension from the winch line before changing gears.

6.07 Care should be exercised in winding the winch line on the drum under load. Never permit the line to bunch up on the drum. When the sheave axle is level, the sheave will be free to travel back and forth in a manner which facilitates level

winding on the drum. In certain instances it may be necessary to guide the sheave with a short piece of pipe by forcing it along the axle. Do not use your hands to guide the winch line.

## 7. MAINTENANCE

7.01 The Powercrat Cable Puller is designed to give satisfactory service over long periods of time with a minimum of maintenance.

7.02 After every fifty hours of operation or once each year, whichever occurs first, remove the metal cover from the winch unit and clean the grit from the gears with kerosene. After they have been well cleaned, apply a sufficient amount of a good grade of chassis grease to thoroughly lubricate the teeth of all gears. Units should be inspected every two months for corrosion, dirt, etc. Clean and lubricate as required.

7.03 The automatic holding brake is operated by spring tension and requires no adjustment. If any irregularity in brake operation is noted, return the Powercrat for inspection and repairs in accordance with local instructions.